

## APPENDIX A – CLEAN VERSION

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## RADIOPROTECTIVE AGENTS

### Cross Reference To Related Applications

This application claims benefit under 35 USC §119(e) of U.S. Provisional Application Serial No. 60/211,375, filed June 14, 2000 and under 35 USC §120 of PCT Application Serial No. PCT/US01/18772, filed June 12, 2001.

### Field Of The Invention

The present invention relates to a method for protecting mammals, in particular humans, from toxic effects of radiation. The present invention further relates to the use of radioprotective agents to prevent and/or treat serious or lethal damage to living cells, tissues and/or living organisms due to radiation exposure. The invention further relates to the use of isoflavones, in particular genistein, to prevent or treat damage from acute or chronic exposure to radiation. The invention also relates to the protection of normal tissues during diagnostic and therapeutic radiation exposure.

### Background Of The Invention

The increased use of radionuclides in diagnostic and therapeutic nuclear medicine as well as the presence of man-made and naturally occurring radioactivity in the environment has created the need for radioprotective agents for protection of living cells, tissues and living organisms before, during, and after exposure to radiation.

Radioprotective agents, also known as radioprotectors, are defined as agents that protect cells or living organisms from deleterious cellular effects of exposure to ionizing radiation. These deleterious cellular effects include damage to cellular DNA, such as DNA strand break, disruption in cellular function, cell death and/or carcinogenesis. The mechanism of this protective effect may at least partially be due to radical scavenging properties and cell cycle modulating properties of the radioprotective agents.

The potential utility of these agents in protecting against exposure to environmental radiation, as well as in cancer radiation therapy, has long been recognized. These agents, administered prior to, during, and/or after exposure to radiation, would eliminate or reduce the severity of deleterious cellular effects caused by exposure to environmental ionizing radiation such as resulting from a nuclear